**TEST PRINCIPLES AND LIMITATIONS**

**Leukocytes (LEU):** This test reveals the presence of granulocyte esterases. These esterases cleave an indoxyl ester, and the indoxyl so liberated reacts with a diazonium salt to produce a violet dye.

Leukocyte esterase results may be positive in the absence of observable cells if the leukocytes have lysed. Positive results may occasionally be found with random specimens from females due to contamination of the specimen by vaginal discharge. Elevated glucose concentrations (1000 mg/dL or ≥ 55 mmol/L) or high specific gravity may cause decreased test results. The presence of cephalin, cephalothin, or tetracycline may cause decreased reactivity, and high levels of the drug may cause a false negative reaction. The test area does not react with intact lymphocytes. Reactivity may also vary with temperature.

**Ketones (KET):** The test is based on the principle of Legal’s test and is more sensitive to acetoacetic acid than to acetone. The reagent area does not react with β-hydroxybutyric acid. Some high specific gravity/low pH urines may give reactions up to and including Trace. Normal urine specimens usually yield negative results with this reagent. False positive results (Trace) may occur with highly pigmented urine specimens.

**Nitrite (NIT):** The test is based on the principle of Griess’s test and is specific to nitrite. Any degree of uniform pink color development should be interpreted as a positive. The presence of nitrite indicates the presence of 10³ or more organisms per mL, but color development is not proportional to the number of bacteria present. A negative result does not in itself prove that there is no significant bacteriuria. Negative results may occur when urinary tract infections are caused by organisms which do not contain reductase to convert nitrate to nitrite; when urine has not been retained in the bladder long enough (4h - 8hrs) for reduction of nitrate to occur; or when dietary nitrate is absent, even if organisms containing reductase are present and bladder incubation is ample. Ascorbic acid concentrations of 25 mg/dL (1.4 mmol/L) or greater may cause false negative results with specimens containing nitrite ion concentrations of 43 μmol/L or less.

**Urobilinogen (URO):** This test is based on the Ehrlich reaction. This test pad will detect urobilinogen in concentrations as low as 3 μmol/L (approximately 0.2 Ehrlich unit/mL) in urine. The test pad may react with interferring substances known to react with Ehrlich’s reagent. Excreted pigments and medications that have an intrinsic red coloration in acidic medium may produce false positive results. This test is inhibited by elevated concentrations of formaldehyde. Strip reactivity increases with temperature; the optimum temperature is 72-79 °F (22-26 °C). The absence of urobilinogen cannot be determined with this test.

**Bilirubin (BIL):** This test is based on the coupling of bilirubin with diazonium salt in an acid medium. Normally no bilirubin is detectable in urine by even the most sensitive methods. Even trace amounts of bilirubin are sufficiently abnormal to require further investigation. Some urine constituents (medications, urinary indicators) may produce a yellowish or reddish discoloration of the test paper that may interfere with interpreting the result. Ascorbic acid concentrations of 25 mg/dL (1.4 mmol/L) or greater may also cause false negatives.

**Protein (PRO):** The test is based on the principle of the protein error of a pH indicator. The reagent area is more sensitive to albumin. An elevated pH (up to 9.0) may affect the test. The residues of disinfectants containing quaternary ammonium groups or chlorhexidine present in the urine vessel may lead to a false positive result.

**Glucose (GLU):** The test is based on the specific glucose oxidase/peroxidase reaction. The test is specific for glucose. No substance excreted in urine other than glucose is known to give a positive result. False positive reactions may be caused by hypochlorite or peroxide (bleach, cleaning agents). Ascorbic acid of more than 1.4 mmol/L and/or high ketone concentrations (80 mg/dL or 8 mmol/L) may cause false negatives for specimens containing small amounts of glucose (100 mg/dL or 5.5 mmol/L). The reactivity of the glucose test decreases as the specific gravity (SG) of the urine increases. Reactivity may also vary with temperature.

**Specific Gravity (SG):** This test contains a detergent and bromothymol blue that indicates the presence of ionic constituents in the urine by changing color from green to yellow. The specific gravity test permits determination of urine specific gravity between 1.000 and 1.060. In general, it correlates within 0.005 with values obtained with the refractive index method. Strips are automatically adjusted for pH by the analyzer when pH ≥ 7.0 or pH ≤ 5.0. Highly buffered alkaline urine may cause low readings relative to other methods. Elevated specific gravity readings may be obtained in the presence of very high quantities of protein (500 mg/dL, 5 g/L).

**Blood (BLD):** Hemoglobin and myoglobin catalyze the oxidation of the indicator by means of organic hydroperoxide contained in the test paper. This test is highly sensitive to hemoglobin and thus complements the microscopic examination for the presence of red blood cells (RBC). (Hemoglobin concentration of 150 - 620 µg/L (9.3 x 10⁵ - 3.8 x 10⁶ mmol/L) is approximately equivalent to 5-15 intact red blood cells per microliter.) The sensitivity of this test may be reduced in urine with high specific gravity. The test is equally sensitive to myoglobin as it is to hemoglobin. Captopril and Etodolac may also cause decreased reactivity. Blood is often found in the urine of intact females in the proestrus stage. Certain oxidizing contaminants, such as hypochlorite, may produce false positive results. Microbial peroxidase associated with a urinary tract infection may cause a false positive reaction. Ascorbic acid concentrations of 24.66 mg/dL (1.4 mmol/L) or greater may cause false negatives at the trace blood levels.

**pH:** This test contains a mixed indicator which assures a marked change in colour between pH 5.0 and pH 9.0.

**REAGENTS COMPOSITION**

**Based on the dry weight content of each pad in 100 strips:**

**Leukocytes:** indoxyl ester 1.4 mg; diazonium salt 0.7 mg.

**Ketone:** sodium nitroprusside 30.0 mg.

**Nitrite:** arsenic acid 0.7 mg; N-(naphthyl)-ethylenediammonium dihydrochloride 0.5 mg.

**Urobilinogen:** fast blue B salt 1.2 mg.

**Bilirubin:** 2.4-dichlorobenzene diazonium 14.3 mg.

**Protein:** tetrabromphenol blue 0.4 mg.

**Glucose:** glucose oxidase 800 IU; peroxidase 200 IU; 4-amoantipyrine 0.1 mg.

**Specific Gravity:** bromothymol blue 0.4 mg; sodium poly methyl vinyl acetate maleic 16.0 mg.

**Blood:** cumene hydroperoxide 35.2 mg; 3,3′,5,5′-tetramethylbenzidine 2.0 mg.

**pH:** bromocresol green 0.2 mg; bromoxynil blue 3.3 mg.

**INSTRUCTIONS FOR USE**

1. Additional materials required: VetScan UA urine analyzer, absorbent lint-free tissue, dropper pipette (optional), disposable gloves, UA Paper (if printout desired, optional). Consult the VetScan UA User’s Manual for more detailed information.

2. Acquire a urine sample by any of the three methods below:
   a. Cystocentesis
   b. Catheter
   c. Mid-stream urine sample

3. Place the VetScan UA analyzer on a stable, flat surface in a room at room temperature (59-77 °F, 15-25 °C).

4. Remove a strip from the tube and immediately recap the tube. Do not touch pads on the strip. Place the strip with pads facing up on a clean paper towel or tissue.

5. Start a test on the VetScan UA by selecting Strip Type as UA10, select the Species and enter the Patient ID (PID). Then touch the Test button (Test Tube icon). A timer will appear onscreen and a beep will sound in several seconds. The application of urine and blotting in steps 6-10 must be performed within 30 seconds.

6. Thoroughly mix the fresh, room temperature (59-77 °F, 15-25 °C) urine sample immediately prior to testing by inverting the syringe or tube/container multiple times.

7. Quickly apply the urine sample to the strip. The urine may be applied to the strip by either of two methods:
   a. Dip the UA10 strip into urine sample, completely immersing all the pads. The sample tube of urine should be deeper than 88 mm. Be sure that all pads are completely wetted. Remove the strip after 2 seconds.

8. Check the test results according to the test pad’s reactivity, which is color-coded (if printout desired, optional).

10. Place strip on UA strip tray with the end of the strip at the edge of
11. When cleaning the strip tray, use alcohol wipes or a tissue moistened
10. The used test strip cannot be reused, but should be disposed of as
9. Blot the strip on the long edge to clean, absorbent paper to remove
8. Do not remove the desiccant pouch from the tube of strips. Replace
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6. Use gloves when handling the strips to avoid touching the reaction pads
5. Only use strips that are at room temperature (59-77 °F, 15-25 °C). If they
4. If the sample will not be tested immediately, it may be stored at 59-77 °F,
3. Collect a fresh urine specimen in a clean, dry container or syringe. Do
2. The strip is NOT intended to be read visually, but only with a VetScan
1. The test is intended for veterinary use only.

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PLEASE NOTE
In principle, diagnosis or therapy should not be based on one test result
alone but should be established in the context of all other medical findings.
Knowledge of the effects of drugs or their metabolites upon the individual tests
is not yet complete. In doubtful cases, it is therefore advisable to repeat the
test after discontinuing a particular drug. Large amounts of ascorbic acid in
the urine can produce artificially low to false-negative results for glucose, blood,
nitrite and bilirubin.

STORAGE AND STABILITY
Strips in the tube may be stored from 36-86 °F (2-30 °C). Abaxis recommends
to store at room temperature 59-77 °F (15-25 °C) as strips should be gently
warmed or cooled to room temperature, as appropriate, prior to opening the
tube to retrieve a test strip. Store only in original tube with desiccant pack,
avoiding humidity, direct sunlight and heat. NOTE: Be sure to tightly recap
the tube immediately after removing strips for use.

EXPIRATION
Unopened tubes of strips are usable until the expiration date. NOTE: Unused
strips that remain in the original capped container with the desiccant are stable
for 3 months after first opening of the tube. After the tube has been opened,
the strips must be used within 90 days (3 months).

PART NO.
1500-0013-50 VetScan UA10 Urine Strips, 50 strips/vial.
1500-0013-25 VetScan UA10 Urine Strips, 25 strips/vial

EXPLANATIONS FOR SYMBOLS ON THE LABEL
Temperature limit 
Do not re-use
Number of items included
Consult instructions for use 
LOT Lot number 
Part number
Manufacturer 
Date of Manufacture 
Keep away from Sunlight
Keep Dry 
Good for 3 months after first opened 
Use-by-date

California Prop. 65 WARNING: This product contains a chemical known to the
State of California to cause birth defects or other reproductive harm. Bisphenol
A CAS-No. 80-05-7. Revision Date 2017-09-27

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